CLAIMS

We claim:

1. An optical coupling unit for coupling at least one optoelectronic converter to an assigned optical waveguide,

wherein

the coupling unit comprises a monolithic glass block in which at least one integrated light guiding channel produced by variation of the refractive index, and least one reflection surface at which light signals passing along the at least one integrated light guiding channel are deflected.

2. The coupling unit as claimed in claim 1, wherein the monolithic glass block has a reflection surface, which deflects the light signals by an angle of 90°.

3. The coupling unit as claimed in claim 1, wherein the reflection surface is mirror-coated.

4. The coupling unit as claimed in claim 1, wherein the monolithic glass block consists of quartz glass.

5. The coupling unit as claimed in claim 1, wherein the integrated light guiding channelis produced in the monolithic glass block by irradiation of ultrashort laser pulses.

6. The coupling unit as claimed in claim 1, wherein the light signals are only guided in a light guiding channel before or after the deflection.

7. The coupling unit as claimed in claim 1, wherein the monolithic glass block comprises one of a one-dimensional array and a two-dimensional array of light guiding channels.

8. The coupling unit as claimed in claim 1, wherein at least one lens is provided on at least one side of the coupling unit.

9. The coupling unit as claimed in claim 7, wherein at least one lens array, which shapes the light entering or leaving the light guiding channels, is provided.

10. The coupling unit as claimed in claim 8, wherein said at least one lens consists of a planar material with refractive index gradients.

11. The coupling unit as claimed in claim 8, wherein said at least one lens consists of plastic injection-molded onto the glass block.

12. The coupling unit as claimed in claim 8, wherein said at least one lens is applied by means of a lithography technique.

13. An optical arrangement for transferring light signals from at least one optoelectronic converterto an assigned optical waveguide, and from the optical waveguide to a coupling unit, wherein the coupling unit comprises a monolithic glass block including a first region having a first refractive index and at least one integrated light guiding channel extending through the first region and having a second refractive index, the glass block also having at least one reflection surface arranged such that light signals passing along the at least one integrated light guiding channel are deflected,

wherein the optoelectronic converter and the assigned optical waveguide are optically coupled to each other by the at least one light guiding channel of the coupling unit.

14. The arrangement as claimed in claim 13, wherein between the optoelectronic converter and the monolithic glass block there is a gap, and wherein the gap is sealed by a sealing material.

15. The arrangement as claimed in claim 13, wherein between at least one optical waveguide and the monolithic glass block there is a gap, and wherein the gap is sealed by a sealing material.

16. The arrangement as claimed in claim 13, wherein an array of optoelectronic converters is optically coupled by a plurality of the light guiding channels formed in the monolithic glass block to an array of optical waveguides.

17. The arrangement as claimed in claim 16, wherein the array of optoelectronic converters is an array of VCSEL lasers.

18. The arrangement as claimed in claim 13, wherein the at least one optical waveguide is arranged in a plug receptacle to which an optical plug can be coupled.

19. The arrangement as claimed in claim 13, wherein the optoelectronic converter is arranged on a planar substrate together with further electrical components.

20. An optical coupling unit for coupling an otoelectronic converter to an optical waveguide, the optical coupling unit comprising:

a monolithic glass block having a first refractive index, the monolithic glass block defining a first surface for receiving light signals from the optoelectronic converter, a second surface for passing the light signals to the assigned optical waveguide,

wherein the monolithic glass block further defines a light guiding channel extending from the first surface to the second surface through the monolithic glass block, and

wherein the light guiding channel is formed by altering a portion of the monolithic glass block such that the light guiding channel has a second refractive index that is greater than the first refractive index of unaltered regions of the monolithic glass block that surround the light guiding channel.